

Notice of Allowability

Application No.

10/690,059

Examiner

Albert Wang

Applicant(s)

SUTHERLAND ET AL.

Art Unit

2115

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 5 December 2006.
2. ☒ The allowed claim(s) is/are 1,3-9,11,12,14-16,18-25,27-37 and 39-45.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20061222</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. This Office action is responsive to the amendment filed 5 December 2006.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gregory Durbin on 22 December 2006.

Paragraph 1050 of the specification has been amended as follows:

[1050] Various methods of encoding information onto a computer readable medium are also well known. The computer readable medium onto which the circuit design or the program of instructions mentioned earlier is encoded includes, but is not limited to, storage media, for example, random access memories, read only memories, magnetically encodable tapes and disks, optically encodable tapes and disks, and communications media, for example, propagated signals such as those used in wireless networks, and the like. Such encodings of a particular circuit design may be transmitted and/or conveyed to an appropriate semiconductor fabrication facility, read using an appropriate reader device, and employed in the definition of an appropriate process, masks, etc. for fabrication of the designed circuit.

Claims 17, 18, 25 and 33 have been amended as follows:

17. (Cancelled)

Art Unit: 2115

18. (Currently Amended) A technique for use in static timing analysis of a circuit employing a transmit clock and a receive clock having different frequencies related to a frequency of a common reference clock, the technique comprising determining a test edge difference corresponding to a worst case slack without enumerating triggering events of the transmit clock and the receive clock. ~~The technique of claim~~
17 wherein determining a worst case slack includes:

- determining an offset between the transmit clock and the receive clock;
- determining an effective phase shift between the transmit clock and the receive clock, based on the offset and a greatest common divisor (GCD), the greatest common divisor involving a multiple of the reference clock period by which the periods of both the first clock and the second clock can be divided without a remainder; and
- setting the test edge difference equal to the effective phase shift.

25. (Currently Amended) An article of manufacture comprising:
a computer usable storage medium ~~tangibly~~ encoding a program of instructions, said program of instructions comprising:

- at least one executable instruction to determine an offset between a first clock signal and a second clock signal, the first clock signal having a first frequency related to a reference clock and the second clock signal having a second frequency different from the first frequency and related to the reference clock;

- at least one executable instruction to determine an effective phase shift between the first clock signal and the second clock signal, based on the offset and a greatest common divisor

Art Unit: 2115

(GCD), the greatest common divisor involving a multiple of the reference clock period by which the periods of both the first clock and the second clock can be divided without a remainder;

at least one executable instruction to determine an edge difference based on the effective phase shift; and

at least one executable instruction to adjust an interval between a reference edge of a first test clock signal and a reference edge of a second test clock signal to simulate a worst case slack.

33. (Currently Amended) A method performed on a processor that encodes an integrated circuit design on a computer usable storage medium, the method comprising:

determining an offset between a first clock signal and a second clock signal, the first clock signal having a first frequency related to a reference clock and the second clock signal having a second frequency different from the first frequency and related to the reference clock;

determining an effective phase shift between the first clock signal and the second clock signal, based on the offset and a greatest common divisor (GCD), the greatest common divisor involving a multiple of the reference clock period by which the periods of both the first clock and the second clock can be divided without a remainder;

determining an edge difference based on the effective phase shift;

generating a circuit design using the worst case slack; and

encoding the circuit design onto the computer usable storage medium.

Art Unit: 2115

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert Wang whose telephone number is 571-272-3669. The examiner can normally be reached on M-F (9:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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PRIMARY EXAMINER